

A preliminary account of *P. patiencei* was read before the Glasgow Natural History Society on January 28th, 1908.

EXPLANATION OF PLATE XVIII.

*Philoscia patiencei*, sp. n., ♀, about 3 mm. in length.

- a*<sup>1</sup>. Antennulæ.
- A. Antenna.
- plp*<sup>1</sup>. First pair of pleopoda, ♂.
- plp*<sup>2</sup>. One of the second pair of pleopoda, ♂.
- ppp*<sup>7</sup>. Seventh pereopod, ♂.
- M. Mandibles.
- mp*. Maxilliped.
- m*<sup>1</sup>. First maxilla.
- m*<sup>2</sup>. Second maxilla.
- ur*. Uropoda.
- ur*\*. Inner ramus more highly magnified, viewed laterally.

LXVII.—On Four little-known Names of Chiropteran Genera. By KNUD ANDERSEN.

*Eidolon*, *Pteronotus*, and *Vampyrum*, Raf.

IN his 'Analyse de la Nature' (Palermo, 1815), p. 54, Rafinesque gives the following arrangement of the order "Chiroptera" :—

- "II, O. *Chiropteria*. Les Chiroptères.
- 4. Famille. *Galeopia*. Les Galeopiens. Doigts des membres antérieurs peu allongés, ponce non séparé; point de canines. G. 1. *Galeopus* R. *Galeopithecus* Cuv.
- 5. Famille. *Vespertilia*. Les Vespertiliens. Doigts des membres antérieurs très-allongés, ponce séparé; des dents canines.
- 1. Sous-famille. *Lophiina*. Les Lophiniens. Des crêtes ou appendices sur la tête. G. 1. *Rhinolophus* Cuv. 2. *Phyllostoma* Geof.
- 3. *Vampyrum* R. do. Geof. sans queue. 4. *Megaderma* Geof.
- 2. Sous-famille. *Nycteria*. Les Nyctériens. Aucunes crêtes ni appendices sur la tête. G. 5. *Pteropus* Bris. Erxl. 6. *Eidolon* R. do. à queue. 7. *Pteronotus* R. do. sp. 8. *Cephalotes* Geof. 9. *Tadaris* R. 10. *Vespertilio* L. Geof. 11. *Nycterus* Geof. 12. *Noctilio* Geof. 13. *Molossus* Geof. 14. *Atalapha* R."

In p. 216 of the same book (under the heading "Abréviations") it is explained that "Sp. do." stands for "Espèces du genre précédent." The words "*Vampyrum* R. do. Geof. sans queue" are therefore a quasi-stenographic abbreviation for: *Vampyrum*, Rafinesque, name proposed for those species of the genus *Phyllostoma*, as understood by E. Geoffroy,

which have no tail. The words "*Eidolon* R. do. à queue" mean: *Eidolon*, Raf., name proposed for those species of the genus *Pteropus*, as hitherto understood, which have a [short] tail. The abbreviation "*Pteronotus* R. do. sp." reads: *Pteronotus*, new generic name proposed by Rafinesque for some species of the genus *Pteropus*.—Bearing these explanations in mind, and considering what literature on Chiroptera could be at the disposal of an author writing in 1815, the identification of the genera now becomes an easy matter.

There is no doubt whatever that, so far as the genera *Pteropus*, *Eidolon*, *Pteronotus*, *Phyllostoma*, and *Vampyrum* are concerned, Rafinesque based his arrangement on E. Geoffroy's now classical papers, "Description des Roussettes et des Céphalotes, deux nouveaux genres de la famille des Chauve-souris" (Ann. Mus. d'Hist. Nat. xv. pp. 86-108; 1810) and "Sur les Phyllostomes et les Mégadermes, deux genres de la famille des Chauve-souris" (*ibid.* pp. 157-198). The evidence is this:—

(1) Rafinesque himself writes (*op. cit.* pp. 50-51): ". . . les travaux de Cuvier, Geoffroy, Desmaretz [*sic*], et Duméril sur la disposition naturelle des genres et leur formation ont servi de bases aux miens."

(2) The three genera *Pteropus*, *Eidolon* (for the species "à queue"), and *Pteronotus* correspond precisely to E. Geoffroy's three sections of "Roussettes (*Pteropus*)," viz. "Roussettes sans queue" (*op. cit.* p. 90; including the species *Pt. edulis*, *edwardsi*, *vulgaris*, *rubricollis*, and *griseus*), "Roussettes à queue" (*op. cit.* p. 94; the species *Pt. stramineus*, *egyptiacus*, *amplexicaudatus*, *marginatus*, and *minus*), and "Roussettes à ailes sur le dos" (p. 98; only species *Pt. pal[l]iatus*). In other words, Rafinesque raised these three sections to the rank of distinct genera, restricting *Pteropus* to the five species without tail, and proposing *Eidolon* as a new generic name for the five species with a short tail, and *Pteronotus* (πτέρων, "aile"; νῶτος, "dos") for the "Roussette à ailes sur le dos," viz. *Pt. palliatus* \*.

*Eidolon* is technically valid, being sufficiently characterized by the words "[pour les espèces du genre précédent] à queue."

\* The same idea, to separate the three sections of "*Pteropus*" as distinct genera, was independently arrived at, fourteen years later, by Gilbert T. Burnett ("The Quarterly Journal of Science, Literature, and Art," 1829, pt. i. (April-June) p. 269), who restricted the name *Pteropus* to the tailless species (only species mentioned: *vulgaris*, *edulis*), and proposed *Cercopterus* for the short-tailed species (*egyptiacus*, *amplexicaudatus*), and *Tribonophorus* (τρίβων, mantle, *pallium*; φορός, bearing) for the "Mantled Roussette, [*Pteropus*] *desmaresti*" (evidently a new

Of the five species included in this genus (see above), *Pt. stramineus*, Geoff. (i. e. *helvus*, Kerr\*), as being the earliest known, may be fixed as the type of the genus. *Eidolon* thus antedates *Pterocyon*, Peters (1861), by forty-six years.

*Pteronotus* is technically a *nomen nudum*. As pointed out above, it was undoubtedly by its author intended to be a generic name of *Pt. palliatus*, E. Geof. [*Dobsonia palliata* of modern authors]; it is also evident why Rafinesque did not find it necessary to mention this species by name; there could in fact be no mistake whatever, since the word *Ptero-* (=aile) *notus* (=dos) was simply a translation of E. Geoffroy's diagnosis of the third section of *Pteropus*, viz. "[espèce] à ailes sur le dos," and this section contained only one species. Nevertheless, according to the now prevalent purely formal way of dealing with nomenclatural questions, *Pteronotus*, Raf., as being from the hand of its author without diagnosis and without definite indication of species, has no standing in technical nomenclature, and therefore does not invalidate *Pteronotus*, J. E. Gray (1838; Phyllostomatidæ), nor does it replace *Dobsonia*, Palmer (1898).

(3) The two genera "*Phyllostoma* Geof." and "*Vampyrum* R. do. Geof. sans queue," correspond precisely to E. Geoffroy's two sections of "*Phyllostome (Phyllostoma)*," viz. "*Phyll. avec une queue*" (*op. cit.* p. 184; the species *Ph. crenulatum*, *elongatum*, *hastatum*, *soricinum*), and "*Phyll. sans queue*" (*op. cit.* p. 185; the species *Ph. perspicillatum*, *lineatum*, *rotundum*, *lilium*, *spectrum*).

The name *Vampyrum* is technically valid, as being diagnosed by the words "[les espèces du genre *Phyllostoma*] sans queue." Of the five species for which the name was proposed (see above) *Phyllostoma spectrum* may be fixed as the type, on the strength of the tautology principle, this species being referred to by E. Geoffroy under the vernacular name "*Le Phyllostome vampire*." *Vampyrum*, Raf. (1815), thus replaces *Vampyrus*, Leach (1821).

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name for *Pt. palliatus*, but technically a *nomen nudum*), though, as pointed out by T. S. Palmer (Index Gen. Mamm. p. 688; 1904), Burnett probably based not direct on E. Geoffroy's paper, but on J. E. Gray's account of the genus *Pteropus* in Griffith's 'Animal Kingdom,' v. pp. 58-59 (1827). Also in this case the new generic name proposed for the single species of the third section, "*Rousettes à ailes sur le dos*," viz. *Tribonophorus*, is technically inadmissible, as based, without diagnosis, on a *nomen nudum*.

\* K. Andersen, Ann. & Mag. N. H. (7) xix. p. 504 (1907).

*Nyctalus*, Bowdich.

The original description runs as follows (T. Ed. Bowdich, 'Excursions in Madeira and Porto Santo during the Autumn of 1823, while on his third voyage to Africa'; opus posthumum, edited by Mrs. Sara Bowdich, afterwards Sara Lee; London, 1825; p. 36):—

"Here [in Madeira] I had an opportunity of remarking . . . that the bat is more than specifically distinct from all those which have, as yet, been described, for it has four pointed incisors above (two by the side of each canine, with a large interval between), and six small incisors below, with three indentations in each. It forms a new sub-genus between *pharopus* and *cephalotes*, and may be named, *nyctalus verrucosus*. [The following as a footnote:—] The lower canines have a heel. The muzzle and *oreillettes* are simple; the ears are equal to the depth of the head in length, and present clusters of orange warts on the outer part, and a few within. It has a nail, and extra joint to the forefinger; three joints to the middle finger, two to the others. The interfemoral membrane (not notched, but triangular) reaches to within one line of the end of the tail, which is within it:—width, from the tip of one wing to the other,  $11\frac{3}{4}$  in., from the muzzle to the tip of the tail  $4\frac{1}{4}$  in., colour, dusky brown."

Palmer (Index Gen. Mamm. pp. 464, 804; 1904) quotes Bowdich's statement, "it forms a new subgenus between *pharopus* [misprint for *pteropus*] and *cephalotes*," and places the genus in the family Pteropodidæ.

A closer examination of the description of *Nyctalus verrucosus* leads, however, to the following conclusions:—

(1) Four of the characters given by Bowdich are evidence that *N. verrucosus* is not a fruit-bat, but a species of Microchiroptera, viz.:—two upper incisors by the side of each canine, with a large interval between (*i. e.* premaxillaries broadly separated anteriorly); six incisors below (no fruit-bat has more than four lower incisors); the presence of an "oreillette" (tragus); tail included in interfemoral, which is triangular, not notched.

(2) The following characters are valueless for an identification of the species:—"Clusters of orange warts" on the outer and inner surface of the ear-conch (hence the name *verrucosus*); these were evidently ticks. The meaning of the words "it has a nail, and extra joint to the forefinger," is not clear; the probable explanation is that "nail" applies to the nail of the pollex, the "extra joint to the forefinger" to the strong phalanx-like tendon connecting the end of the metacarpal of the second digit with the end of the first phalanx of the third digit; but other interpretations are possible. "Three joints" in the third digit, "two in the others," because Bowdich counted the long terminal rod of the third digit in Vespertilionid bats as a "phalanx," which

for all practical purposes it is. A conspicuous "heel" (cingulum posteriorly at base) in the lower canines is found in most Vespertilionid bats. The "simple" muzzle excludes any species of *Rhinolophus*, of which, however, none are known from Madeira, and which would be excluded also for other reasons (incisors, want of tragus).—There remain three characters to be tested on the Microchiroptera known to occur in Madeira, viz. the size of the ears, the projecting tip of the tail, the measurements.

(3) Four bats have been recorded from Madeira: *Pipistrellus pipistrellus*, *P. maderensis*, *Pterygistes madeiræ*, and *Nyctinomus teniotis*; to these may perhaps be added, though to my knowledge not recorded from the island, *Miniopterus schreibersi* and *Vespertilio serotinus*.—The two species of *Pipistrellus* are out of the question, owing to their size being much smaller than that of Bowdich's *N. verrucosus*. *Nyctinomus teniotis* is excluded on account of the long free portion of the tail and large size. *Miniopterus schreibersi*, because the tail is wholly included in the interfemoral. *Vespertilio serotinus*, because the length of the ears is much greater than the depth of the head, the general size of the animal too large, and the freely projecting tip of the tail much more than one line. *Pterygistes madeiræ*, Barr.-Ham. (Ann. & Mag. N. H. (7) xvii. pp. 98–99; 1906), is the only Madeiran bat for which the combination of the three characters holds good; the ears (whether viewed in profile or measured from the crown) are equal in length to the depth of the head; the extreme tip of the tail (1–2 mm.) projects beyond the interfemoral; the measurements of the type and paratypes (for many years preserved in alcohol; forearms mostly broken) cannot be taken exactly; in one specimen (paratype) the expanse is fully 11 in.; the total length, including tail, about 4 in.; and it should be remembered that Bowdich probably measured a freshly killed specimen, which can be stretched more freely; *Pt. madeiræ* is, judging from the length of the forearm, metacarpals, and phalanges, precisely of the same size as the *Pt. leisleri*, and of this latter Kolenati\* gives as average measurements of the total length, including tail, 107·2 mm. (4·2 in.), of the expanse 291·5 mm. (11·6 in.), thus practically the same measurements as Bowdich's of *N. verrucosus*.

(4) According to the above, *Pterygistes madeiræ*, Barr.-Ham., is a synonym of *Nyctalus verrucosus*, Bowdich, and the generic name *Nyctalus* (1825) replaces *Pterygistes* (Kaup, 1829).

\* "Monographie der europäischen Chiroptern," in Jahresh. mahrschles. Ges. f. 1859, table ad p. 46 (1860).